

Software Product Description

PRODUCT NAME: PDP-11 FORTRAN-77 DEBUG, Version 1.0

SPD 30.33.01

DESCRIPTION

PDP-11 FORTRAN-77 DEBUG is a fully symbolic debugger for FORTRAN-77 and MACRO-11 programs running on RSX-11M, RSX-11M-PLUS, RSTS/E, and VAX/VMS under the ABE. PDP-11 FORTRAN-77 DEBUG is a tool to aid in finding the location of programming errors in successfully compiled programs that do not execute properly.

PDP-11 FORTRAN-77 DEBUG runs as a two-task debugger. A small portion of the code, necessary to debug applications, is linked with the user task and the major portion of the debugger runs as a separate task.

PDP-11 FORTRAN-77 DEBUG provides access to program symbols by reading the symbol table file produced by the Taskbuilder on each of the operating systems on which it is supported. PDP-11 FORTRAN-77 DEBUG can understand symbols produced by PDP-11 FORTRAN-77 and MACRO-11.

Features

- DEPOSIT and EXAMINE of all data types supported by PDP-11 FORTRAN-77 (except virtual array elements)
- Full tracepoint and breakpoint functionality for monitoring the execution of user applications, including the ability to delay the activation of a tracepoint or breakpoint until after it has been encountered a specified number of times and the ability to specify an action to perform on encountering a tracepoint or breakpoint
- Control of execution using STEP by LINE or INSTRUCTION, STEP INTO routines or OVER routines, and the GO command
- Computation of the value of source language expressions or of address expressions using the EVALUATE command
- Full support for overlaid code, including the ability to set tracepoints and breakpoints on locations not currently resident. PDP-11 FORTRAN-77 DEBUG can distinguish among multiple copies of modules located at different points in the overlay structure.
- The ability to drive a debugging session using indirect command files and to record the results of a debugging session by command logging. PDP-11 FORTRAN-77 DEBUG can be used interactively or in batch mode.

- On-line HELP that allows the user to receive information about the commands accepted by PDP-11 FORTRAN-77 DEBUG during a debugging session

At Compile Time

To enable debugging of FORTRAN-77 programs, you must specify a switch in the compiler command line. This switch specifies that information about the symbols in your FORTRAN-77 application will be put into the object file created by the compiler.

To enable debugging of MACRO-11 programs, you must specify a switch in the assembler command line. This causes information about the symbols in your assembly language program to be available to PDP-11 FORTRAN-77 DEBUG.

At Taskbuild Time

When taskbuilding the application which will be run under control of PDP-11 FORTRAN-77 DEBUG, it is necessary to modify the taskbuilder command line and overlay description file.

MINIMUM HARDWARE REQUIRED

Any valid mapped RSX-11M, RSX-11M-PLUS, RSTS/E, or VAX/VMS Operating System configuration with the following:

- Floating Point Processor (FPP), if the application being debugged exercises floating point arithmetic
- At least 56k bytes of user memory
- At least 42k bytes of memory in the user's task space
- Up to 300 contiguous disk blocks for the debugger task

For VAX-11/730 Systems

R80/RL02 configuration required for VAX-11/730 systems

OPTIONAL HARDWARE

None

PREREQUISITE SOFTWARE

One of the following Operating Systems:

- RSTS/E*
- RSX-11M*
- RSX-11M-PLUS*
- VAX/VMS*

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*Refer to the appropriate Optional Software Cross Reference Tables for the required version.

RSTS/E Optional Software Cross Reference Table (20.97.xx)

RSX-11M Optional Software Cross Reference Table (20.98.xx)

RSX-11M-PLUS Optional Software Cross Reference Table (20.99.xx)

VAX/VMS Optional Software Cross Reference Table (25.99.xx)

OPTIONAL SOFTWARE

Any of the following languages can be used to write applications that can be debugged by PDP-11 FORTRAN-77 DEBUG

- PDP-11 FORTRAN-77/RSTS, Version 5.0
- PDP-11 FORTRAN-77/RSX, Version 5.0
- PDP-11 FORTRAN VAX to RSX, Version 5.0
- MACRO-11 (included as part of the prerequisite Operating System)

A single application program composed of modules written in both FORTRAN-77 and MACRO-11 can also be debugged using PDP-11 FORTRAN-77 DEBUG

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product. There is no additional charge. This software product is warranted to conform to the Software Product Description (SPD). This means that DIGITAL will remedy any nonconformance when it is reported to DIGITAL by the customer during the warranty period.

The warranty period is ninety (90) days. It begins when the software is installed or thirty (30) days after delivery to the end user, whichever occurs first and expires ninety (90) days later or one hundred eighty (180) days after release of a subsequent version of the software.

Warranty Service

DIGITAL provides software warranty service worldwide. Service is provided in the country of purchase and is not transferable between countries.

DIGITAL will provide a service location which will accept reporting (in a format prescribed by DIGITAL) of a nonconformance problem caused when using the licensed software under normal conditions as defined by the SPD. DIGITAL will respond to a nonconformance problem in the current unaltered release of the licensed software by issuing correction information such as: correction documentation, corrected code, or notice of availability of corrected code; or a restriction or a bypass. The customer will be responsible for the preparation and submission of the problem report to the service location.

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DIGITAL DOES NOT WARRANT THAT THE SOFTWARE LICENSED TO CUSTOMER SHALL BE ERROR FREE, THAT THE SOFTWARE SHALL OPERATE WITH ANY HARDWARE AND SOFTWARE OTHER THAN AS SPECIFIED IN THIS SPD, THAT THE SOFTWARE SHALL SATISFY CUSTOMER'S OWN SPECIFIC

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IF THE SOFTWARE FAILS TO FUNCTION FOR REASONS STATED ABOVE, THE CUSTOMER'S WARRANTY WILL BE INVALIDATED AND ALL SERVICE CALLS WILL BE BILLABLE AT THE PREVAILING PER CALL RATES.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

DIGITAL's Installation Services can be purchased as a separate service.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase Installation Service for the host operating system and you install both software products concurrently.

ORDERING INFORMATION

DIGITAL provides a wide range of material and service options supporting this software product. Each option is described below. If you are already familiar with these options you may obtain the ordering information directly from the Software Options Chart. In most cases you will want to review the following descriptions to determine what options you require.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then you will select the materials and service options you need to utilize the product effectively.

You order the license, materials and services using order numbers of the form: Qxxxx-X?. "Qxxxx" refers to the specific software product, "X" is the license code or material service option and "?" is the selectable media code for machine readable materials.

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on such CPU.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU and it includes your 90 day warranty.

For your first installation of this software product you must purchase as a minimum:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine readable software and related documentation.

To use this software product on additional CPU's, you must purchase as a minimum:

- Single-Use License Option

In addition to the right to use, the license gives you the right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

VAXCLUSTER LICENSE OPTION

You are eligible for a VAXcluster license option on your second or each subsequent CPU that is part of a VAXcluster system. This is a Single-Use License offered at a reduced price and provides all of the License rights described above. A standard, Single-Use license option (QDxxx-UZ or QExxx-UZ) is required with the first purchase of this software product and is also required for the first CPU of a VAXcluster system. For software configuration purposes, A VAXcluster system is a set of VAX processors, each running the VMS operating system, where each VAX processor has a direct path to every other VAX processor via Computer Interconnect (CI) Bus.

MATERIALS AND SERVICE OPTIONS

Distribution and Documentation Option

The Distribution and Documentation Option provides the software object code in binary form and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. You will also need this option to obtain revised versions of the software product when they become available.

If you prefer to receive automatic distribution of revised versions for this product, you must purchase a Software Product Service Agreement.

Software Revision Right-To-Copy Option

The Right-To-Copy option allows a customer with multiple CPU's to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPU's by purchasing the Right-To-Copy option for each additional CPU.

If you prefer to automatically obtain the right-to-copy, you must purchase a Service Right-to-Copy for each additional CPU; this is a service added to a Software Product Service Agreement.

Documentation-Only Option

You can obtain one copy of the basic documentation by purchasing the Documentation-Only option.

Installation Service Option

Installation Service includes those services provided by a DIGITAL Software Specialist to successfully install a software product. Digital's Installation Service accelerates your productive use of this product. (If Operating System parameters must be changed, system regeneration may not be included in the Installation Service.)

Installation Service will be provided at no additional charge (Courtesy Installation) under the conditions described in the Installation section above.

Software Product Service Agreements

DIGITAL offers you a choice of three Software Product Service Agreements to support your software. These agreements provide a set of the following services depending on the agreement selected: remedial and maintenance service, revised versions of the software and documentation, telephone support and newsletters or dispatches containing suggested fixes for known problems.

The level of service you need depends primarily on three factors: (1) your available manpower, (2) your staff's level of expertise, and (3) the importance to you of having your system current and operating at peak efficiency. Our DIGITAL representative can help you select the service best suited to your needs. The agreement types are listed below.

DECsupport Service is designed for people requiring high availability of their system and for customers who need regular access to DIGITAL's technical expertise. It is the most comprehensive support service, offering on-site preventative maintenance and remedial support for critical problems. In addition, it also provides revised versions of the software and documentation, fast response, telephone support and newsletters or dispatches.

BASIC Service is ideal for customers who have their own technical staff but need fast answers to operational questions. The telephone support provided in this service gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and newsletters or dispatches.

Self-Maintenance Service is designed for customers who require only minimal support but wish to receive revised versions of the software and documentation information from DIGITAL. In addition, the service provides newsletters or dispatches.

All agreements are available to licensed DIGITAL customers on an annual, contractual basis.

The Prerequisite Software, as specified by this SPD, must have the equivalent level Software Product Service.

A variety of service options may be added to an existing Software Product Service Agreement as follows:

- Customers who want to copy the revised software received under their Software Product Service Agreement onto additional CPUs running that same product may order a Service Right-to-Copy for each CPU, Qxxxx-3Z.

Training from Educational Services

To ensure customer success with DIGITAL products, Educational Services sells training for the installation, maintenance and/or management of DIGITAL software. Course formats vary from seminars to packaged training materials that include self-paced instruction and computer-based instruction to traditional lecture/labs offered at DIGITAL's 27 worldwide training centers.

All course schedules, availability and purchasing information is listed in the Educational Services' DIGEST, a quarterly publication designed to assist customers in planning their training programs.

Professional Software Services

DIGITAL Software Specialists are available on a per-call or resident contract basis to help in all phases of software development or implementation. Specialists are available to serve as technical consultants, decision support consultants or business systems analysts. Resources are available to:

- Supplement your programming staff
- Assume project management responsibility
- Develop software
- Assure successful start-up and performance with product specific packaged services

Contact your DIGITAL representative for additional information and ordering details.

Chart

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QY232-HH = binaries on RL02 Disk Cartridge.

D = 9-track 800 BPI Magtape (NRZI)

G = TU58 DECTape II Cartridge*

H = RL02 Disk Cartridge

M = 9-track 1600 BPI Magtape (PE)

Q = RL01 Disk Cartridge

T = RK06 Disk Cartridge

V = RK07 Disk Cartridge

Y = RX01 Floppy Diskette

Z = No hardware dependency

- * The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

SOFTWARE OPTIONS CHART I

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER RSX-11M RSX-11M-PLUS QBUS ¹	ORDER NUMBER RSX-11M RSX-11M-PLUS UNIBUS ²	ORDER NUMBER RSTS/E QBUS ¹	ORDER NUMBER RSTS/E UNIBUS ²
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU				
Single-Use License	QY232 UZ	QP232-UZ	QY233-UZ	QP233 UZ
MATERIALS AND SERVICE OPTIONS:				
Distribution and Documentation Option	QY232-HH QY232-HM	QP232-HD QP232-HH QP232-HM QP232-HQ QP232-HT QP232-HV	QY233-HH QY233-HM	QP233-HD QP233-HH QP233-HM QP233-HQ QP233-HT QP233-HV
Software Revision Right-To-Copy Option	QY232-HZ	QP232-HZ	QY233-HZ	QP233-HZ
Documentation Only Option	QY232-GZ	QP232-GZ	QY233-GZ	QP233 GZ
Installation Service Option	QY232-IH QY232-IM	QP232-ID QP232-IH QP232-IM QP232-IQ QP232-IT QP232-IV	QY233-IH QY233-IM	QP233 ID QP233 IH QP233 IM QP233 IQ QP233 IT QP233 IV
SOFTWARE PRODUCT SERVICE AGREEMENTS:				
DECsupport Service	QY232-9H QY232-9M	QP232-9D QP232-9H QP232-9M QP232-9Q QP232-9T QP232-9V	QY233-9H QY233-9M	QP233 9D QP233 9H QP233-9M QP233-9Q QP233 9T QP233-9V
Basic Service	QY232-8H QY232-8M	QP232-8D QP232-8H QP232-8M QP232-8Q QP232-8T QP232-8V	QY233-8H QY233-8M	QP233 8D QP233-8H QP233-8M QP233 8Q QP233 8T QP233-8V

SOFTWARE OPTIONS CHART (Continued)

OPTIONS	ORDER NUMBER RSX-11M RSX-11M-PLUS QBUS¹	ORDER NUMBER RSX-11M RSX-11M-PLUS UNIBUS²	ORDER NUMBER RSTS/E QBUS¹	ORDER NUMBER RSTS/E UNIBUS²
Self-Maintenance Service	QY232-3H QY232-3M	QP232-3D QP232-3H QP232-3M QP232-3Q QP232-3T QP232-3V	QY233-3H QY233-3M	QP233-3D QP233-3H QP233-3M QP233-3Q QP233-3T QP233-3V

¹ A Microprocessor (Q-bus) includes all LSI bus systems, boards and chip sets (11/23-PLUS, MICRO/PDP-11, MICRO/J11, MICRO/F11, and MICRO/T-11)

² A UNIBUS includes all PDP-11 systems having a UNIBUS (examples PDP-11/24, PDP-11/34, PDP-11/44, and PDP-11/70).

SOFTWARE OPTIONS CHART II

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER 11/75 VAX-11/30	ORDER NUMBER VAX-11/750	ORDER NUMBER VAX-11/780 VAX-11/782*
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.			
Single-Use License	QC139-UZ	QD139-UZ	QE139-UZ
VAXcluster License		QD139-QZ	QE139-QZ
MATERIALS AND SERVICE OPTIONS:			
Distribution and Documentation Option	QC139-HG	QD139-HG	QE139-HY
Software Revision Right-To-Copy Option	QC139-HZ	QD139-HZ	QE139-HZ
Documentation Only Option	QC139-GZ	QD139-GZ	QE139-GZ
Installation Service Option	QC139-IG	QD139-IG	QE139-IY
SOFTWARE PRODUCT SERVICE AGREEMENTS:			
DECsupport Service	QC139-9G	QD139-9G	QE139-9Y
Basic Service	QC139-8G	QD139-8G	QE139-8Y
Self-Maintenance Service	QC139-3G	QD139-3G	QE139-3Y

* For software licensing purposes a VAX-11/782 is a multiprocessor that is considered a single CPU